ACCESSION #: 9103120031

LICENSEE EVENT REPORT (LER)

FACILITY NAME: VOGTLE ELECTRIC GENERATING PLANT- UNIT 2 PAGE: 1 OF 3

DOCKET NUMBER: 05000425

TITLE: MAIN FEEDPUMP SLOWDOWN LEADS TO REACTOR TRIP

EVENT DATE: 02/18/91 LER #: 91-005-00 REPORT DATE: 03/06/91

OTHER FACILITIES INVOLVED: DOCKET NO: 05000

OPERATING MODE: 1 POWER LEVEL: 100

THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR SECTION: 50.73(a)(2)(iv)

LICENSEE CONTACT FOR THIS LER:
NAME: R.M. ODOM, NUCLEAR SAFETY AND COMPLIANCE TELEPHONE: (404) 826-3201

COMPONENT FAILURE DESCRIPTION:
CAUSE: X SYSTEM: SJ COMPONENT: SCO MANUFACTURER: G080
REPORTABLE NPRDS: N

SUPPLEMENTAL REPORT EXPECTED: NO

ABSTRACT:

On 2-18-91 at 0747 CST, the control room operators observed loss of feedwater and steam flow/feed flow mismatch annunciators, determined that a slowdown of Main Feedpump (MFP) "A" had occurred, and saw that steam generator (SG) water levels were dropping. The reactor control rods were inserted, and the turbine load was reduced. The operators attempted to increase MFP "B" speed in order to maintain the SG water levels. However, MFP "B" speed was locked-in due to the signal memory function and did not increase. An automatic reactor trip occurred due to SG 1 reaching its low-low water level trip setpoint. The Auxiliary Feedwater (AFW) System actuated, and the operators took action to throttle flow to the SGs in order to stabilize SG water levels and maintain a normal Reactor Coolant System temperature. Both MFPs were tripped, and at 0839 CST the turbine-driven AFW pump was secured. The motor-driven AFW pumps remained in service to supply normal feedwater needs with the plant in Mode 3.

An investigation found a faulty component on a circuit board in the MFP "A" speed control which allowed pump speed to decrease to its minimum value after an apparent power fluctuation. The circuit board with the faulty component was replaced and preventive maintenance is being instituted.

END OF ABSTRACT

TEXT PAGE 2 OF 3

A. REQUIREMENT FOR REPORT

This report is required per 10 CFR 50.73 (a)(2)(iv) because an unplanned actuation of the Reactor Protection System occurred.

B. UNIT STATUS AT TIME OF EVENT

At the time of this event, Unit 2 was operating in Mode 1 (Power Operation) at 100% of rated thermal power. One of four steam generator (SG) level transmitters for SG 1 was out of service, leaving three operable level transmitters on SG 1.

C. DESCRIPTION OF EVENT

On 2-18-91 at 0747 CST, the control room operators observed loss of feedwater and steam flow/feed flow mismatch annunciators, determined that a slowdown of Main Feedpump (MFP) "A" had occurred, and saw that SG water levels were dropping. The reactor control rods were inserted, and the turbine load was reduced. The operators attempted to increase MFP "B" speed in order to maintain the steam generator (SG) water levels. However, MFP "B" speed was locked-in due to the signal memory function and did not increase. An automatic reactor trip occurred due to SG 1 reaching its low-low water level trip setpoint. The Auxiliary Feedwater (AFW) System actuated and the operators took action to throttle flow to the SGs in order to stabilize SG water levels and maintain a normal Reactor Coolant System temperature. Both MFPs were tripped, and at 0839 CST the turbine-driven AFW pump was secured. The motor-driven AFW pumps remained in service to supply normal feedwater needs with the plant in Mode 3.

D. CAUSE OF EVENT

An investigation identified a faulty component on a circuit board in the signal memory function of the MFP "A" speed control circuit. Apparently, a momentary power fluctuation in the slave controller power supplies or the comparator power supplies for both MFPs allowed the current output to drop below the comparator's 2-milliamp minimum. The signal memory function of the pump speed controllers is designed to "lock-in" the speed setting of the pumps which exists prior to any power fluctuation. The MFP "B" pump speed locked-in as designed. However, due to the failed component on the circuit board, MFP "A" pump speed dropped to its minimum setting, which was insufficient to maintain normal SG water levels. The cause of the momentary power fluctuation could not be determined.

For this specific type of MFP failure, the operators did not recognize that the speed of MFP "B" was locked-in and could not be increased using the normal method. They also assumed that MFP "A" had failed and that its speed could not be increased. In fact, a method exists to take manual control of both pumps which could have bypassed the signal memory function of the speed control circuit and allowed the operators to maintain or increase the speed of either pump or both pumps. Although this method is the proper response

for a failure of the normal MFP control signal, it had not been delineated either in the abnormal operating procedure or in operator training.

E. ANALYSIS OF EVENT

In response to the decrease in SG level, a reactor trip occurred and the AFW system actuated as designed. The operators responded properly to throttle flow to the SGs and to stabilize the unit. Based on these considerations, there was no adverse effect on plant safety or the health and safety of the public as a result of this event.

F. CORRECTIVE ACTIONS

1. The circuit board with the faulty component was replaced and preventive maintenance is being instituted. This will be implemented by 6-15-91.

2. Procedure 17015-1 & 2, "Annunciator Response Procedures For ALB 15 On Panel 1B1 (2B1) On MCB," were changed to direct the operators to take manual control and bypass the normal speed controller when the above described circumstances occur. Additionally, these actions were discussed during the normal shift briefings following the event. Finally, licensed operator training will be reviewed by 4-19-91 to ensure that the details for performing this task under the appropriate circumstances are included in the training modules.

G. ADDITIONAL INFORMATION

1. Failed Components:

   Circuit board manufactured by General Electric Corporation. Part #125D460AD2

2. Previous Similar Events:

   None

3. Energy Industry Identification System Code:

   Main Feedwater System - SJ

   Auxiliary Feedwater System - BA

   Control Rod Drive System - AA

   Reactor Coolant System - AB

Georgia Power Company
40 Inverness Center Parkway
Post Office Box 1295
Birmingham, Alabama 35201
Telephone 205 877-7122

Georgia Power
the southern electric system

C. K. McCoy
Vice President, Nuclear
Vogtle Project

March 6, 1991

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Docket No. 50-425

U. S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington, D. C. 20555

Gentlemen:

9103120031.TXT
VOGTLE ELECTRIC GENERATING PLANT
LICENSEE EVENT REPORT
MAIN FEEDPUMP SLOWDOWN LEADS TO REACTOR TRIP

In accordance with 10 CFR 50.73, Georgia Power Company hereby submits the enclosed report related to an event which occurred on February 18, 1991.

Sincerely,

C. K. McCoy

CKM/NJS/gm

Enclosure: LER 50-425/1991-005

xc: Georgia Power Company
Mr. W. B. Shipman
Mr. P. D. Rushton
Mr. R. M. Odom
NORMS

U. S. Nuclear Regulatory Commission
Mr. S. D. Ebneter, Regional Administrator
Mr. D. S. Hood, Licensing Project Manager, NRR
Mr. B. R. Bonser, Senior Resident Inspector, Vogtle

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